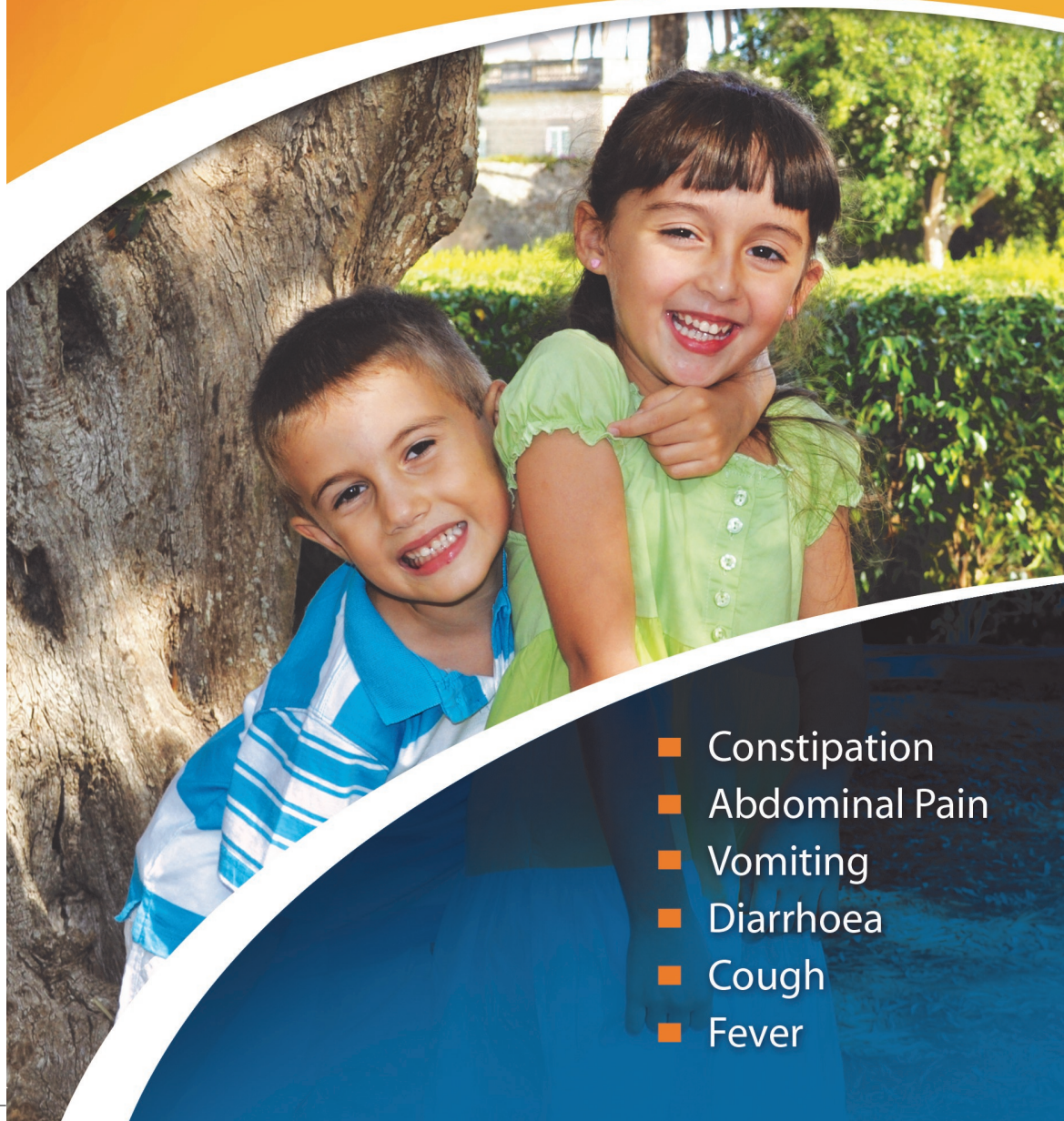


# Protocols for Paediatric Care



- Constipation
- Abdominal Pain
- Vomiting
- Diarrhoea
- Cough
- Fever

# Hayfever?

## Histasin

Cetirizine  
10mg tablets



**Composition:** Cetirizine dihydrochloride 10mg. **Therapeutic indications:** Symptomatic treatment of allergic rhinitis, rash and urticaria due to histamine release. **Posology and method of administration:** Dosage for adults: One tablet daily. Dosage for children: Children 12 years of age and over: One tablet daily. Children aged between 6 to 12 years, weighing more than 30 kg: One tablet once daily or ½ tablet mornings and evenings. Children aged between 6 to 12 years, weighing less than 30 kg: ½ tablet once daily. The drug is not recommended for children below 6 years of age. If sedation occurs the tablets can be taken in the evening. **Contraindications:** Patients with a history of hypersensitivity to cetirizine or any of the excipients. Patients with severe renal impairment should not take the drug. **Special warnings and special precautions for use:** In some patients, prolonged use of the drug may lead to increased risk of dental caries because of dryness of the mouth. Therefore the importance of mouth hygiene should be emphasized. Histasin tablets contain lactose. The medicine is contra-indicated in patients with lactose intolerance, galactose intolerance or insufficient absorption of glucose/galactose. In renal or hepatic insufficiency the elimination of cetirizine may be reduced. Therefore the drug should be administered with caution to such patients. Caution is recommended if Histasin is used together with CNS depressants. **Interactions with other medicinal products and other forms of**

**interaction:** Allergy test: The use of cetirizine should be stopped 3 days prior to skin test procedures. Cetirizine may increase the effects of alcohol. Therefore caution is required when alcohol is used concomitantly. Caution is recommended when drugs with inhibiting effects on the CNS are administered concurrently with cetirizine. **Pregnancy and lactation:** Data on limited number of exposed pregnancies indicate no adverse effects of cetirizine on pregnancy or on health of foetus/new born child. To date no other relevant epidemiological data are available. Animal studies do not indicate direct or indirect harmful effects with respect to pregnancy, embryonic/foetal development, parturition or post natal development. Caution is recommended when the drug is prescribed to pregnant women. The medicine passes into breast milk and can affect the breast-fed baby. Don't use Histasin during breast-feeding unless it has been prescribed for you by a doctor. **Effects on ability to drive and use machines:** Rarely cetirizine can have sedating effects and impair patients' alertness and reaction time. This should be considered when extra alertness is required, as when driving or operating machines. Cetirizine may potentiate the effects of alcohol and CNS inhibitors. **Undesirable effects:** Common ( $\leq 1/10$  and  $> 1/100$ ): Gastrointestinal tract: Dry mouth. Nervous system: Tiredness and sleepiness. Uncommon ( $\leq 1/100$  and  $> 1/1000$ ): General: Weakness, malaise. Gastrointestinal tract: Gastric discomfort and gastrointestinal disorders. Nervous

system: Headache, dizziness, restlessness, paraesthesia. Respiratory: Pharyngitis. Rare ( $\leq 1$  in 1000 and  $> 1$  in 10,000): Cardiac: Tachycardia. Hepato-biliary: Abnormal hepatic function (increase in transaminases, alkaline phosphatase, gamma-GT and bilirubin). Nervous system: Convulsions. Psychiatric: Aggression, confusion, depression, insomnia. Investigations: Weight increase. Very rare ( $\leq 1$  in 10,000): Immune system: Allergic reactions such as cutaneous reactions and quinine's oedema. Blood and lymphatic system: Thrombocytopenia. Eye: Disturbances of accommodation, blurred vision. Nervous system: Dysgeusia, syncope. Renal and urinary: Difficulties in micturition. **Marketing Authorisation Holder:** Actavis hf, Reykjavíkurvegi 76-78, 220 Hafnarfjörður, Iceland. **This product is not subject to medical prescription.**

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# **PROTOCOLS FOR PAEDIATRIC CARE**



Martina Muscat

This booklet was compiled by Martina Muscat as part of a project carried out for the partial fulfilment of the requirements of the course leading to the Degree of Bachelor of Pharmacy Honours.

The study was carried out under the supervision of Professor Lilian M Azzopardi, Head of Department, Department of Pharmacy, University of Malta.

Protocols were adapted from previous projects entitled 'Development of protocols for paediatric care' by Ralph Azzopardi in 2005, and 'Validation of protocols for paediatric care' by Stephanie L Magro in 2009.

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Further information is available at **[www.paediatricprotocols.com](http://www.paediatricprotocols.com)**

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# Preface

Pharmacists are in a unique position of being easily accessible health care professionals to whom parents may refer with presentation of symptoms by paediatric patients. In paediatric pharmacy practice there are a number of challenges including the lack of published information on the use of some drugs in paediatric patients and the lack of appropriate dosage forms and strengths of proprietary products. The protocols presented in this booklet are intended to assist pharmacists in meeting the special needs of patients aged under 18 years when responding to common ailments.

The booklet has been compiled by pharmacy student Martina Muscat and is one of a series of booklets that are prepared by the Department of Pharmacy to contribute towards standards in pharmacy practice and the continuous professional development of pharmacists. One of the research areas of the department is protocol-based pharmacy practice. The concept of the use of protocols in pharmacy practice is to provide guidelines to support the clinical practitioner in decision-making during participation in patient care. Protocols are used in conjunction with clinical judgement to provide rationale, safe and effective pharmacist interventions.

Professor Lilian M.Azzopardi  
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# How to use this booklet

This booklet comprises a set of protocols, containing the latest evidence-based information, that guide the pharmacist through important steps to follow when responding to minor paediatric ailments and providing advice. They should be considered as guidelines and should not replace the pharmacist's clinical judgement.

The following steps indicate the appropriate way to use this booklet.

**Step 1:** Select either the Non-prescription protocol flowchart (*p. 3*) or the Prescription protocol flowchart (*p. 5*). These include documenting patient details using the Patient Medication Record template (*Appendix 8*).

*For the Non-prescription protocol continue with steps 2-5.*

**Step 2:** Select the adequate protocol depending on the main presenting symptom.

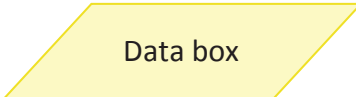
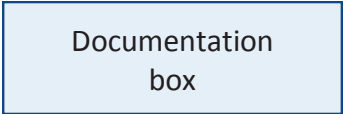
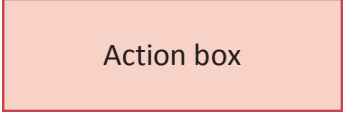
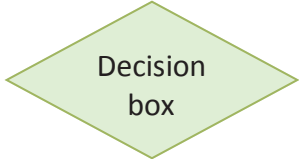
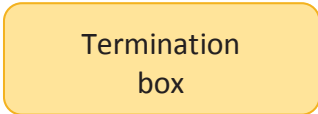
**Step 3:** If referral is necessary, complete Referral form A (*Appendix 7*) and exit protocol.

**Step 4:** Devise an appropriate treatment plan. Refer to *Appendix* for dosage regimen, cautions, contra-indications, and side-effects. Document dispensing using the Patient Medication Record template (*Appendix 8*).

**Step 5:** If symptoms persist on follow-up visit complete Referral form B (*Appendix 7*).



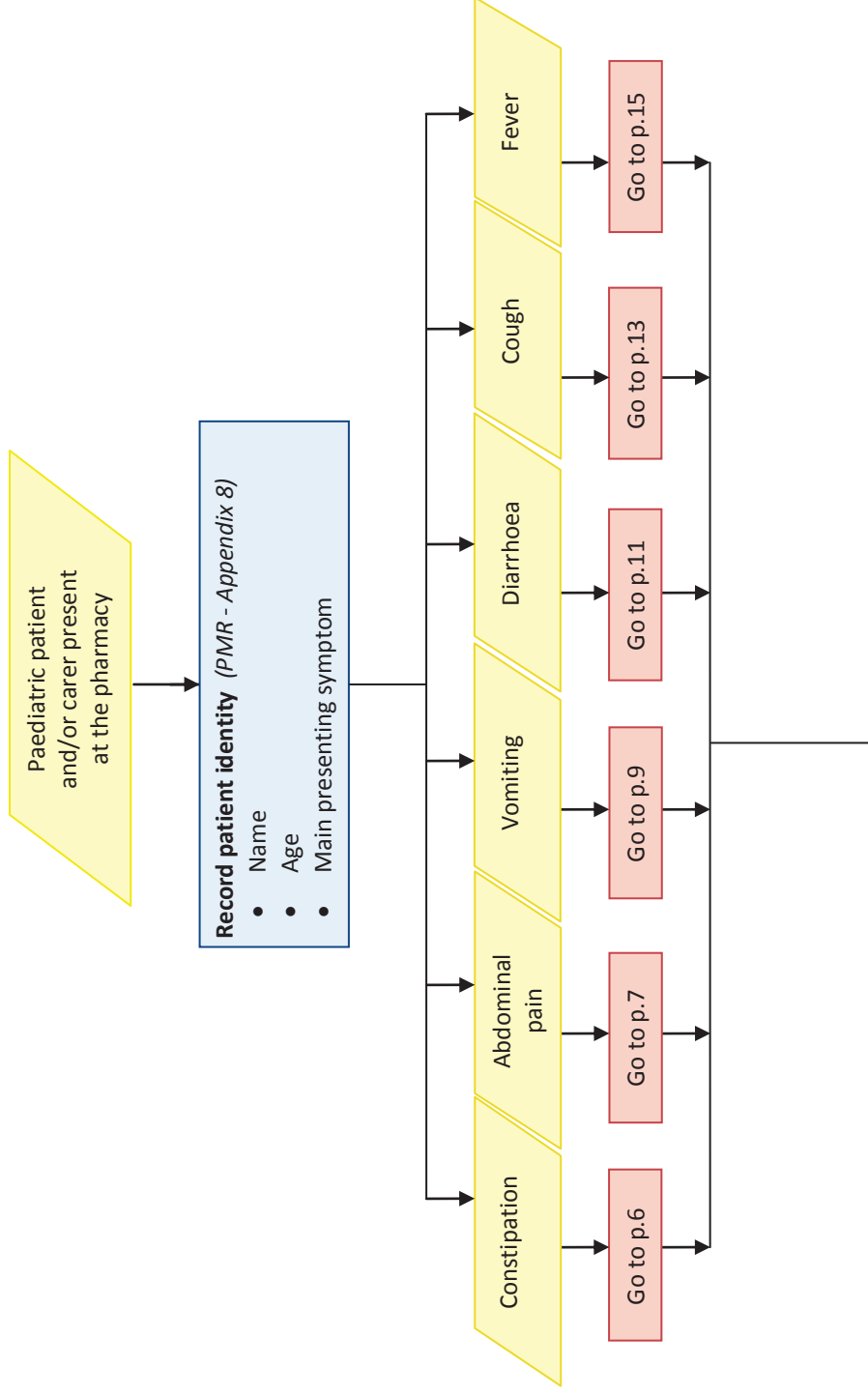
# Interpretation of shapes

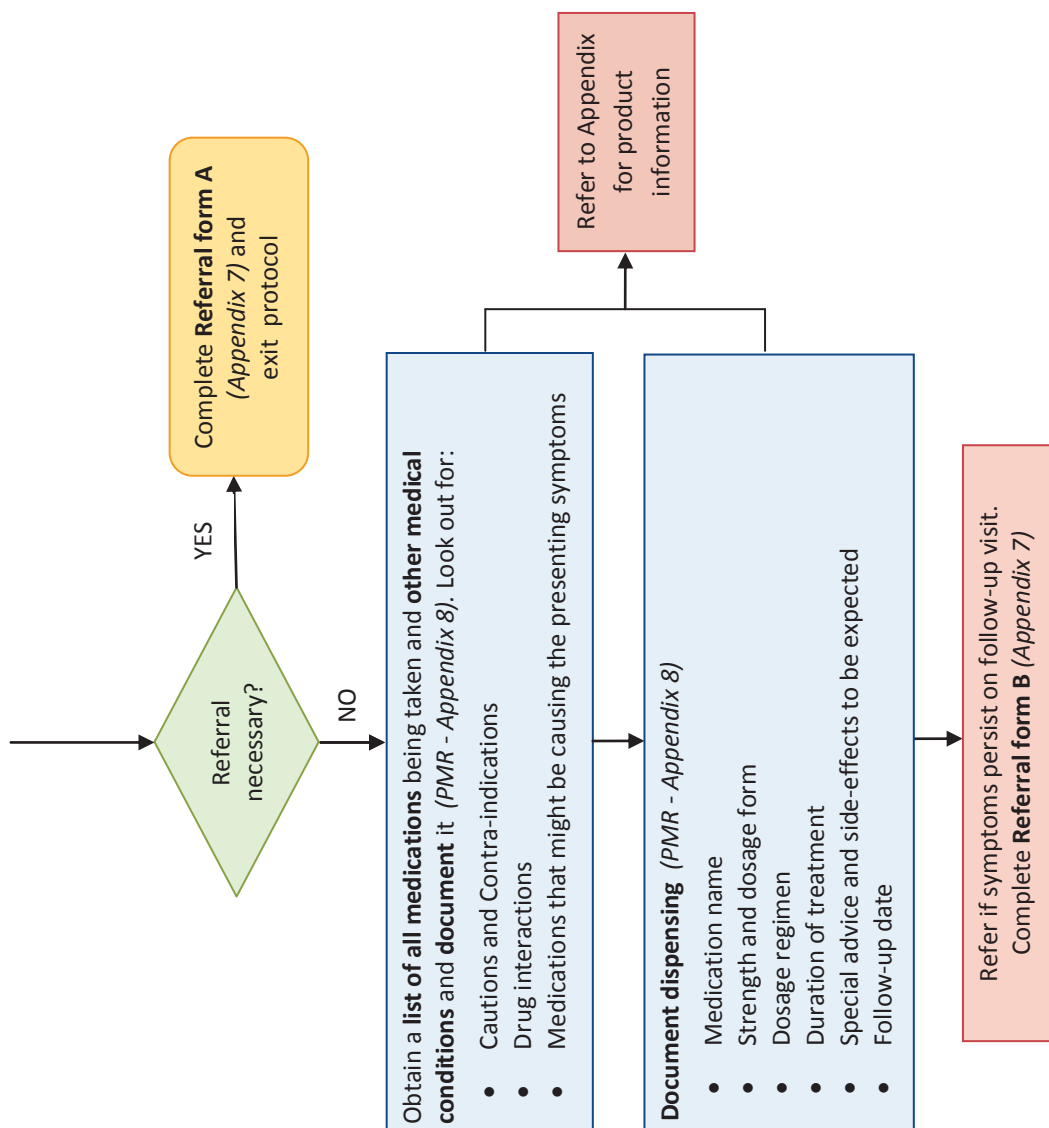
|  |  |
|--|--|
| <br>Data box          | Known information about the patient                                  |
| <br>Documentation box | Pharmacist records intervention                                      |
| <br>Action box        | Pharmacist required to perform an action                             |
| <br>Decision box      | Pharmacist required to make a decision that leads to different paths |
| <br>Termination box | Pharmacist required to perform an action and exit protocol           |

## Abbreviations

|      |                                   |
|------|-----------------------------------|
| hr   | hour                              |
| wk   | week                              |
| mo.  | month                             |
| yr   | year                              |
| GI   | gastro-intestinal                 |
| GORD | gastro-oesophageal reflux disease |
| UTI  | urinary tract infection           |
| App. | Appendix                          |
| PMR  | Patient Medication Record         |

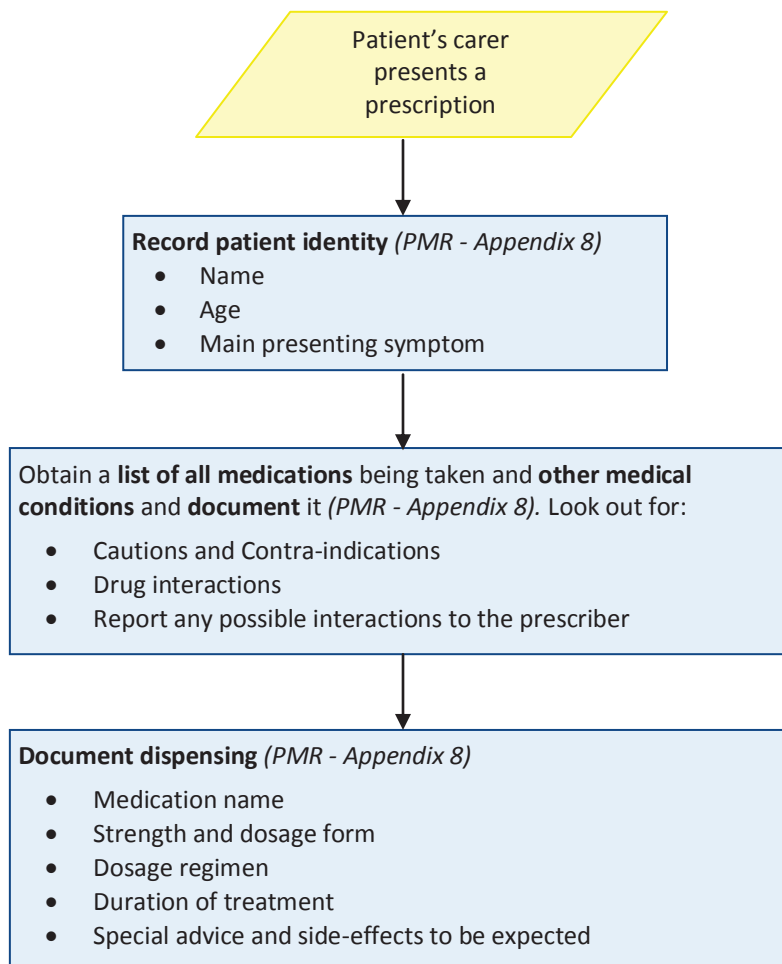
# Non-Prescription Protocol Flowchart





Adapted from: Mercieca D. Validation of protocols for the treatment of the common cold [dissertation]. Msida (Malta): Department of Pharmacy, University of Malta; 2009; Pace O'Shea S. Guidelines for the prescribing of analgesics [dissertation]. Msida (Malta): Department of Pharmacy, University of Malta; 2010.

# Prescription Protocol Flowchart



Adapted from: Mercieca D. Validation of protocols for the treatment of the common cold [dissertation]. Msida (Malta): Department of Pharmacy, University of Malta; 2009; Pace O'Shea S. Guidelines for the prescribing of analgesics [dissertation]. Msida (Malta): Department of Pharmacy, University of Malta; 2010.

# Constipation

| Questions  | Action   |
|--|--|
| <b>Age?</b>  | Refer children < 1 yr  |
| <b>Normal bowel habit?</b><br>The normal range may vary from three movements in one day to three in one wk | Refer a change in normal bowel habit accompanied by hard stools lasting for 2 wks or longer  |
| <b>Duration?</b>   |  |
| <b>Onset?</b><br>Constipation in children is often caused by a change in diet or emotional causes          | <ul style="list-style-type: none"> <li>• Give dietary and toileting advice</li> <li>• Consider the use of a <b>laxative</b> (<i>Appendix 1</i>)</li> </ul> |
| <b>Child shows warning signs?</b><br><br><i>See Table A</i>  | <b>Refer</b>   |

**Table A - Warning signs accompanying constipation**

| Warning sign                            | Possible cause           |
|---|--------------------------|
| Blood in faeces                         | GI bleeding              |
| Weight loss                             | Intestinal disorder      |
| Decreased appetite                      | Intestinal obstruction   |
| Vomiting                                | GI infection             |
| Abdominal pain                          |                          |
| Fever                                   | GI infection             |
| Constipation alternating with diarrhoea | Irritable bowel syndrome |

## Dietary and Toileting Advice

- Increase fluid intake, particularly water and prune, pear or apple juice.
- Suggest changing the formula milk to one specific for constipation.
- Increase fibre intake like fruits, raw vegetables, baked beans and cereals.
- Advise daily physical activity.
- Advise unhurried time on the toilet after meals.
- Suggest a reward system linked to stool frequency (star charts).
- Only start potty training when the toddler shows signs that he/she is ready.

# Abdominal Pain

| Questions  | Action   |
|--|--|
| <b>Age?</b>  |  |
| <i>2 wks - 4 mo.</i> - may indicate infantile colic, usually occurring in the evening. The baby is well between episodes.      | <ul style="list-style-type: none"> <li>• Give advice on infantile colic</li> <li>• Consider use of <b>Simeticone</b> (<i>App.2</i>)</li> <li>• Refer if crying persists for several hours or if the baby is vomiting</li> </ul>  |
| <i>4 mo. - 2 yrs</i> - may indicate intussusception  | Refer  |
| <i>&gt; 2 yrs</i>  | Continue assessment (see below)  |
| <b>Location and onset?</b>   |  |
| <i>Upper abdomen</i> , related to meals - peptic ulcer or GORD   | Refer  |
| <i>Lower abdomen</i> - diverticulitis or appendicitis (radiating to right side)  | Refer immediately  |
| <i>Groin or scrotum</i> - strangulated inguinal hernia or testicular torsion   | <ul style="list-style-type: none"> <li>• Refer immediately</li> <li>• Advise not to allow child to eat or drink</li> </ul>   |
| <b>Intensity and duration?</b>   | <ul style="list-style-type: none"> <li>• Refer severe pain that is continuous for &gt; 4 hrs</li> <li>• Refer milder pain that persists for 2 wks or pain that worsens</li> </ul>  |
| <b>Abdominal pain accompanied by constipation?</b>   | <ul style="list-style-type: none"> <li>• Give dietary and toileting advice (<i>p.6</i>)</li> <li>• Consider use of <b>Laxative</b> (<i>App.1</i>)</li> <li>Refer if treatment is not effective</li> </ul>  |
| <b>Abdominal pain accompanied by vomiting and/or diarrhoea?</b><br>May indicate gastroenteritis                                | <ul style="list-style-type: none"> <li>• Refer babies &lt; 1 yr</li> <li>• Enquire about food and fluid intake</li> <li>• Consider <b>Oral Rehydration Therapy</b> (<i>App.3</i>) for children &gt; 1 yr. Refer if no improvement after 24 hrs</li> <li>• Give dietary advice (<i>p.12</i>)</li> </ul> |
| <b>Abdominal pain accompanied by pain or burning sensation when passing urine, or increased urgency?</b><br>May indicate a UTI | Refer  |
| <b>Child shows warning signs?</b><br><i>See Table B</i>  | <b>Refer</b>   |

**Table B - Warning signs accompanying abdominal pain**

| Warning sign   | Possible cause   |
|--|--|
| Greenish vomit (bile-stained)<br>Projectile vomiting<br>Refusal to drink or feed for > 6 hrs | Intestinal obstruction                                 |
| Blood in faeces  | Intestinal infection<br>Intussusception<br>GI bleeding |
| Alternating episodes of constipation and diarrhoea   | Irritable bowel syndrome                               |

***Advice on Infantile Colic***

- Reassure the parents or carers that colic is not their fault and the condition will eventually resolve.
- Ensure that formula feeds are prepared correctly (correct amounts of water and milk, water temperature and swirling rather than shaking bottle vigorously).
- In bottle-fed babies, the teat size can be changed since small or large teats result in swallowing excessive amounts of air.
- Ensure the baby is fed in a more upright position and that the teat is full of milk to reduce the chance of the baby swallowing air.
- In bottle-fed babies, a hypoallergenic formula milk (hydrolysed casein milk) could be tried for 1 wk and see if there is any improvement.
- A lactose-free formula milk can be tried, or drops of lactase can be added to the usual formula or breast milk. Wean the baby off such products at the age of 3-4 months.
- Breast-feeding mothers can try avoiding cow's milk and dairy products (especially skimmed) for 1 wk and see if there is any improvement. Spicy food and alcohol should also be avoided.
- Reduce the amount of stimulation, including auditory stimulation, to which an infant is exposed.



# Vomiting

| Questions   | Action  |
|---|---|
| <b>Age?</b><br><b>Duration?</b><br><b>Severity?</b>   | Refer vomiting lasting for more than:<br>- 1 day in children < 2 yrs<br>- 2 days in older children<br>Refer > 3 vomiting episodes in past 24 hrs  |
| <b>Onset?</b><br>Acute onset vomiting is often caused by gastroenteritis, more likely due to viruses. Bacteria are responsible for food poisoning, particularly of dairy products, poultry and meat.<br><b>Vomiting accompanied by diarrhoea, with or without fever?</b><br>These are common accompanying symptoms that indicate gastroenteritis. | <ul style="list-style-type: none"> <li>• Enquire about food and fluid intake in the previous 2 days</li> <li>• Enquire whether other family members or friends are affected</li> <li>• Refer if symptoms are severe</li> <li>• Refer babies under &lt; 1 yr if diarrhoea is also present</li> <li>• Consider <b>Oral Rehydration Therapy (App.3)</b>. Consider <b>Paracetamol (App.5)</b> if fever is also present. Refer if no improvement after 24 hrs</li> <li>• Give dietary advice (<i>see also p.12</i>)</li> </ul> |
| <b>Projectile vomiting?</b><br>May indicate pyloric stenosis, which presents between 2-8 wks of age, more commonly in first-born males  | Refer   |
| <b>Vomiting brought about by coughing?</b><br>May indicate pertussis  | Refer   |
| <b>Vomiting accompanied by fever?</b><br>Other than gastroenteritis, may indicate infection such as otitis media or a UTI, especially if no diarrhoea present   | Refer   |
| <b>Child shows warning signs?</b><br><i>See Table C</i>   | Refer   |

## Dietary Advice

- Start solid foods after rehydration. Give small frequent feeds. Examples include toast, oatmeal and cooked fruit.
- Drink plenty of fluids in small volumes at frequent intervals.
- Avoid milk, dairy products, raw fruit, raw vegetables and bran cereals.
- Nurse the baby upright after feeds.

**Table C - Warning signs accompanying vomiting**

| Warning sign  | Possible cause  |
|---|---|
| Lethargy<br>Sunken eyes<br>Sunken fontanelle<br>Poor skin turgor<br>Pale or mottled skin<br>Cold extremities<br>Dry mucous membranes<br>Decreased urine output<br>Tachycardia         | Dehydration   |
| Severe headache<br>Dislike of bright light<br>Neck stiffness<br>Flat, dark-red or purple spots that do not fade when pressed by a transparent surface (non-blanching)<br>Irritability | Meningitis  |
| Blood in vomitus  | Oesophagitis<br>Peptic ulceration                       |
| Greenish vomit (bile-stained)<br>Vomit with a faecal smell<br>Inability to drink adequate amounts of fluid  | Intestinal obstruction                                  |
| Black or blood-stained faeces   | Intestinal bleeding                                     |
| Abdominal pain in right hand side of lower abdomen  | Appendicitis  |
| Convulsions   | Febrile seizures, serious infection or form of epilepsy |
| Head injury   |   |
| Possible poison or foreign body ingestion   |   |

# Diarrhoea

| Questions   | Action  |
|---|---|
| <b>Age?</b><br><b>Duration?</b><br><b>Severity?</b>   | Refer diarrhoea lasting for more than:<br>- 1 day in children < 1 yr<br>- 2 days in children < 3 yrs<br>- 3 days in older children<br><br>Refer > 6 diarrhoeal stools in past 24 hrs  |
| <b>Onset?</b><br><br>Acute onset diarrhoea is often caused by gastroenteritis, usually due to viruses in children. Bacteria are responsible for food poisoning, particularly of dairy products, poultry and meat.<br><br><b>Diarrhoea accompanied by vomiting, with or without fever?</b><br>These are common accompanying symptoms of gastroenteritis. Vomiting is more likely to feature with viral infections. | <ul style="list-style-type: none"> <li>• Enquire about food and fluid intake in the previous 2 days</li> <li>• Enquire whether other family members or friends are affected</li> <li>• Refer if symptoms are severe</li> <li>• Refer babies &lt; 1 yr if vomiting is also present</li> <li>• Consider <b>Oral Rehydration Therapy (App.3)</b>. Consider <b>Paracetamol (App.5)</b> if fever is also present. Refer if no improvement after 24 hrs</li> <li>• Give dietary advice</li> </ul> |
| Unfamiliar foods, sugar intake and artificial sweeteners found in sweets and drinks could be causing the diarrhoea  | <ul style="list-style-type: none"> <li>• Advise to stop the food that causes diarrhoea for 1 wk</li> <li>• Advise to reduce sugar intake</li> </ul>   |
| Recent travel abroad to tropical or subtropical countries may give rise to diarrhoea which is infective in origin   | Refer   |
| <b>Diarrhoea accompanied by abdominal pain?</b><br>Abdominal pain is common in patients suffering from diarrhoea, presenting as sharp, colicky or griping pain  | <ul style="list-style-type: none"> <li>• Reassure that this is a common accompanying symptom</li> <li>• Refer severe pain</li> </ul>  |
| <b>Child suffering from anxiety?</b><br>Diarrhoea can be the result of anxiety, stress or excitement  | <ul style="list-style-type: none"> <li>• Make sure a known cause of anxiety exists and infective causes are excluded</li> <li>• Consider <b>Oral Rehydration Therapy (App.3)</b></li> <li>• Refer if symptoms persist</li> </ul>  |
| <b>Child shows warning signs?</b><br><i>See Table D</i>   | Refer   |

**Table D - Warning signs accompanying diarrhoea**

| Warning sign   | Possible cause                                |
|--|---|
| Lethargy<br>Sunken eyes<br>Poor skin turgor<br>Dry mucous membranes<br>Decreased urine output<br>Tachycardia | Dehydration                                   |
| Refusal to drink for over 6 hrs  | Intestinal obstruction                        |
| Blood and mucus in stools  | Inflammatory bowel disease<br>Intussusception |
| Weight loss  | Malabsorption syndromes                       |
| Chronic or nocturnal diarrhoea   | Intestinal disorder                           |
| Diarrhoea alternating with constipation  | Irritable bowel syndrome                      |

***Dietary Advice***

- Breast-feeding should be continued day and night. Breast milk can be given together with oral rehydration salts (ORS).
- Formula milk can be continued in babies who are not clinically dehydrated.
- Fluids should be given at least every 3 hrs.
- Start solid foods after rehydration. Give small frequent feeds.
- Avoid high-fibre or bulky foods, fatty foods and spices.
- Avoid tea, fruit juices, carbonated drinks and sugary or salty foods and drinks.

***Prevention of Diarrhoea***

- Two oral vaccines against rotavirus are available for infants aged between 6 - 24 wks, consisting of 2 or 3 doses (depending on vaccine) given at a 4-wk interval.
- Encourage the mother to exclusively breastfeed for the first 4 - 6 months of life and if possible continue breastfeeding until at least 1 yr of age.
- Formula milk must be sufficiently diluted to avoid osmotic diarrhoea and prepared exactly as recommended by the manufacturer.
- Give advice on adequate hygiene whilst preparing and giving weaning foods.
- Give advice on adequate hand washing.
- Towels used by infected children should not be shared.
- Children should not return to school or childcare facilities until at least 48 hrs after the last episode of diarrhoea.

## Cough

| Questions  | Action   |
|--|--|
| Age?   | Refer children < 6 months  |
| Duration?  | Refer cough lasting for > 2 wks  |
| Type of cough?<br><br><i>Dry cough</i> - indicates irritation by viral infections, dry atmosphere or a change in temperature. Dry night-time cough may indicate asthma.<br><br><i>Chesty cough with clear/white sputum</i> - non-coloured sputum is harmless, unless produced in copious amounts<br><br><i>Chesty cough with coloured sputum, blood-stained or foul-smelling</i> (see Warning Signs) | <ul style="list-style-type: none"> <li>• Refer dry night-time cough</li> <li>• Continue assessment to exclude need for referral</li> <li>• Consider a <b>Dry Cough Medicine</b> (<i>Appendix 4</i>). Follow MHRA advice.</li> <li>• Give advice on how to alleviate cough</li> </ul><br><ul style="list-style-type: none"> <li>• Consider a <b>Chesty Cough Medicine</b> (<i>Appendix 4</i>). Follow MHRA advice.</li> <li>• Give advice on how to alleviate cough</li> </ul><br>Refer |
| Sound characteristics?<br><br><i>Noisy breathing - Wheezing</i> may indicate asthma or respiratory tract infections.<br><i>Stridor</i> may indicate croup.   | Refer  |
| <i>Harsh barking cough</i><br>Indicates croup, especially if child is between 6 mo. - 3 yrs of age   | Refer  |
| <i>Paroxysmal coughing followed by a whoop</i><br>Indicates pertussis, especially if child is < 5 yrs of age. This may occur despite the child being immunised.  | Refer  |
| <b>Cough accompanied by common cold symptoms?</b><br>Indicates a simple viral infection  | <ul style="list-style-type: none"> <li>• Consider a <b>Cough Medicine</b>, depending on type of cough (<i>Appendix 4</i>). Follow MHRA advice.</li> <li>• Give advice on how to alleviate cough</li> <li>• If fever is present, consider the use of an <b>Anti-pyretic</b> (<i>Appendix 5</i>).</li> <li>• Give advice on how to alleviate fever (<i>p.15</i>). Refer if fever does not resolve</li> </ul>   |
| <b>Child shows warning signs?</b><br><i>See Table E</i>  | Refer  |

**Table E - Warning signs accompanying cough**

| Warning sign  | Possible cause                                       |
|---|--|
| Thick yellow /green/ brown sputum<br>Foul-smelling sputum<br>Blood-stained sputum | Lower respiratory tract infection<br>(eg. pneumonia) |
| Straw-coloured sputum   | Allergic disorders (eg. asthma)                      |
| Persistent earache  | Otitis media   |
| Vomiting after paroxysmal coughing  | Pertussis  |
| Symptoms of nasal allergies   | Allergic rhinitis                                    |
| Exercise-induced cough  | Asthma   |
| Difficulty in swallowing  | Epiglottitis   |
| Blue lips (central cyanosis)  | Low levels of oxygen                                 |
| Possible foreign body inhalation  |  |

***MHRA advice on the use of cough and cold medicines in children***  
*(Medicines and Healthcare products Regulatory Agency, UK - 2009, 2010)*

**Children under 6 years** should only be given:

- Simple linctus and other demulcents containing glycerol, honey and lemon
- Saline nose drops
- Vapour rubs and inhalant decongestants (children > 3 mo.)
- Paracetamol or Ibuprofen

**Children over 6 years** can be given:

- Antitussives (except OTC oral liquid codeine-containing medicines)
- Antihistamines
- Expectorants
- Mucolytics
- Nasal decongestants

***Advice on how to alleviate cough***

- Encourage regular fluid intake.
- A warm drink of honey and lemon can be given to children > 1 yr.
- Extra pillows or raising the head of the cot or bed can aid sleep.
- Suggest the use of room humidifiers and vaporizers.
- Check the child during the night to make sure condition is not deteriorating.

# Fever

| Questions   | Action   |
|---|--|
| <b>Age?</b><br><b>Severity?</b><br><b>Duration?</b>   | <i>Under 6 months</i><br>- Refer<br><br><i>Over 6 months</i><br>- Refer if child seems unwell<br>- Refer if fever lasts for > 2 days<br>- Refer if temperature is > 39°C   |
| <b>Fever accompanied by common cold symptoms?</b>   | <ul style="list-style-type: none"> <li>Consider <b>Anti-pyretic</b> treatment (<i>Appendix 5</i>)</li> <li>Give advice on how to alleviate fever</li> <li>Refer if no improvement seen in 2 days</li> </ul>  |
| <b>Fever accompanied by earache or sore throat?</b><br>Indicates otitis media or tonsillitis respectively | Refer  |
| <b>Child recently vaccinated?</b><br>Vaccines tend to cause fever   | <ul style="list-style-type: none"> <li>Consider <b>Anti-pyretic</b> treatment (<i>Appendix 5</i>)</li> <li>Reassure that fever will wear off in a few days</li> <li>Give advice on how to alleviate fever</li> <li>Routine prophylactic anti-pyretic treatment is not recommended</li> </ul> |
| <b>Child shows warning signs?</b><br><br><i>See List 1</i>  | Refer  |

## Advice on how to alleviate fever

- Offer the child regular fluids, preferably with the necessary electrolytes such as juices. If the child is breastfed, breast milk is most appropriate.
- Keep the room temperature at about 21-25°C / 70-74°F.
- Dress the child in light cotton clothes and do not overdress the child.
- Put an extra blanket on the child only if the he/she has chills.
- Avoid cold baths or tepid sponging.
- Check the child during the night to make sure condition is not deteriorating.



### List 1 - Warning signs accompanying fever

- Severe headache
- Dislike of bright light
- Irritability
- Stiff neck
- Pallor
- Skin rash
- Abdominal pain
- Dysuria and urinary urgency
- Vomiting
- Changes in behaviour
- Abnormal drowsiness
- Heavy, rapid breathing
- Wheezing
- High-pitched crying
- Loss of appetite
- Seizures
- Sore or swollen joints

| Celsius | Fahrenheit |
|---------|------------|
| 36.6    | 97.8       |
| 37.0    | 98.6       |
| 37.6    | 99.6       |
| 38.0    | 100.4      |
| 38.6    | 101.4      |
| 39.0    | 102.2      |
| 39.6    | 103.2      |
| 40.0    | 104.0      |
| 40.6    | 105.1      |
| 41.0    | 105.8      |

| Age         | Recommended method for temperature-measurement <sup>1</sup>  |
|-------------|--|
| < 4 wks     | • Electronic thermometer in axilla   |
| 4 wks-5 yrs | <ul style="list-style-type: none"> <li>• Electronic thermometer in axilla</li> <li>• Infrared tympanic thermometer</li> </ul> <i>(Rectal route, although accurate, is no longer recommended due to patient unacceptability and risk of injuries)</i> |
| > 5 yrs     | <ul style="list-style-type: none"> <li>• Electronic thermometer used orally (accurate)</li> <li>• Infrared tympanic thermometer</li> <li>• Electronic thermometer in axilla</li> </ul>   |

| Measurement method | Normal temperature range <sup>2</sup> |
|--------------------|---------------------------------------|
| Axillary (armpit)  | 34.7 - 37.3°C                         |
| Oral               | 35.5 - 37.5°C                         |
| Rectal             | 36.6 - 38°C                           |
| Tympanic (ear)     | 35.8 - 38°C                           |

1. National Institute for Health and Clinical Excellence. Clinical guideline. Feverish illness in children: assessment and initial management in children younger than 5 years. London: RCOG Press; 2007.
2. Canadian Paediatric Society. Temperature measurement in paediatrics [homepage on the Internet]. Canada: The Society; 2010 Feb [cited 2010 Apr 20]. Available from: URL: <http://www.cps.ca/english/statements/CP/cp00-01.htm>



# Appendix

|                    | Ispaghula husk   | Lactulose  | Glycerol  | Bisacodyl  |
|--------------------|--|--|---|--|
| Class              | Bulk-forming   | Osmotic  | Stimulant   | Stimulant  |
| Dosage regimen     | <b>&lt; 6 yrs:</b><br>Only on doctor's advice<br><b>6 - 12 yrs:</b><br>$\frac{1}{2}$ - 1 level 5mL spoonful twice daily<br><b>12 - 18 yrs:</b><br>1 sachet twice daily | <b>1 mo. - 1 yr:</b><br>2.5mL twice daily<br><b>1 - 5 yrs:</b><br>2.5 - 10mL twice daily<br><b>5 - 18 yrs:</b><br>5 - 20mL twice daily | <b>Suppositories</b><br><b>1 mo. - 1 yr:</b><br>1g as required<br><b>1 - 12 yrs:</b><br>2g as required<br><b>12 - 18 yrs:</b><br>4g as required<br><b>Rectal Gel</b><br><b>1 mo. - 2 yrs:</b><br>4g every 3 days<br><b>2 - 6 yrs:</b><br>4g daily<br><b>&gt; 6 yrs:</b><br>4g, renewed after 1hr if no effect | <b>Oral</b><br><b>4 - 18 yrs:</b><br>5 - 20mg once daily<br><b>Suppositories</b><br><b>2 - 18 yrs:</b><br>5 - 10mg once daily                        |
| Cautions           | <ul style="list-style-type: none"> <li>• Maintain adequate fluid intake</li> </ul>   | <ul style="list-style-type: none"> <li>• Lactose intolerance</li> </ul>  | <ul style="list-style-type: none"> <li>• Avoid prolonged use</li> </ul>   | <ul style="list-style-type: none"> <li>• Prolonged use - electrolyte imbalance</li> </ul>  |
| Contra-indications | <ul style="list-style-type: none"> <li>• Dysphagia</li> <li>• Intestinal obstruction</li> <li>• Colonic atony</li> <li>• Faecal impaction</li> </ul>                   | <ul style="list-style-type: none"> <li>• Galactosaemia</li> <li>• Intestinal obstruction</li> </ul>                                    | <ul style="list-style-type: none"> <li>• Anal fissure</li> <li>• Haemorrhagic rectocolitis</li> <li>• Acute haemorrhoids</li> </ul>   | <ul style="list-style-type: none"> <li>• Intestinal obstruction</li> <li>• Acute inflammatory bowel disease</li> <li>• Severe dehydration</li> </ul> |
| Side-effects       | <ul style="list-style-type: none"> <li>• Flatulence</li> <li>• Gastro-intestinal obstruction</li> <li>• Hypersensitivity</li> </ul>                                    | <ul style="list-style-type: none"> <li>• Nausea</li> <li>• Flatulence</li> <li>• Cramps</li> <li>• Abdominal discomfort</li> </ul>     | <ul style="list-style-type: none"> <li>• Local irritation</li> <li>• Congestive rectitis</li> </ul>   | <ul style="list-style-type: none"> <li>• Abdominal cramps</li> <li>• Nausea and vomiting</li> <li>• Colitis</li> </ul>                               |
| Notes              | <ul style="list-style-type: none"> <li>• Take with water after meals</li> <li>• Do not take before sleeping</li> </ul>   | <ul style="list-style-type: none"> <li>• Take with meals to reduce nausea</li> <li>• May take up to 48 hrs to work</li> </ul>          | <ul style="list-style-type: none"> <li>• Lubricate before insertion</li> </ul>  | <ul style="list-style-type: none"> <li>• <b>2nd line treatment</b></li> <li>• Acts in 10-12 hrs</li> </ul>   |

## Antifoaming agents

|                           | Simeticone   |
|---------------------------|--|
| <b>Dosage regimen</b>     | <p><b>Dentinex® Infant Colic Drops</b> (42mg/5mL)</p> <p><i>Neonate - 2 yrs:</i><br/>2.5mL with or after each feed (max. 6 doses daily).<br/>May be added to bottle feed</p> <p><b>Infacol®</b> (40mg/mL)</p> <p><i>Neonate - 2 yrs:</i><br/>0.5 - 1 mL before feeds</p> |
| <b>Cautions</b>           | <ul style="list-style-type: none"> <li>• Refer to medical practitioner if symptoms persist for several hours</li> <li>• Diabetes</li> </ul>  |
| <b>Contra-indications</b> | <ul style="list-style-type: none"> <li>• Hypersensitivity to ingredients</li> </ul>  |
| <b>Side-effects</b>       | <ul style="list-style-type: none"> <li>• No known side-effects</li> </ul>  |
| <b>Notes</b>              | <ul style="list-style-type: none"> <li>• The evidence of benefit of Simeticone in infantile colic is <b>uncertain</b></li> <li>• The container should be shaken gently before use</li> </ul>   |

|                           | Oral Rehydration Salts   | Loperamide   |
|---------------------------|--|--|
| <b>Dosage regimen</b>     | <p><b>1 mo. - 2 yrs:</b><br/>1 - 1½ times the usual feed volume</p> <p><b>2 - 12 yrs:</b><br/>1 sachet dissolved in 200mL of water, after every loose stool</p> <p><b>&gt; 12 yrs:</b><br/>1 - 2 sachets (200 - 400 mL), after every loose stool</p>   | <p><b>&lt; 8 yrs:</b><br/>Not licensed</p> <p><b>8 - 12 yrs (Not recommended):</b><br/>2mg four times daily, for up to 5 days</p> <p><b>&gt; 12 yrs:</b><br/>Initially 4mg, then 2mg after each loose stool, for up to 5 days (max. 16mg - 8 capsules)</p> |
| <b>Cautions</b>           | <ul style="list-style-type: none"> <li>• Persistent vomiting</li> <li>• Hepatic impairment</li> <li>• Renal impairment</li> <li>• Diabetes</li> <li>• Low sodium / potassium diet</li> </ul>   | <ul style="list-style-type: none"> <li>• Maintain adequate fluid intake</li> <li>• Avoid prolonged use</li> <li>• Hepatic impairment</li> </ul>  |
| <b>Contra-indications</b> | <ul style="list-style-type: none"> <li>• Intestinal obstruction</li> </ul>   | <ul style="list-style-type: none"> <li>• Conditions where inhibition of peristalsis should be avoided</li> <li>• Abdominal distension</li> <li>• Ulcerative colitis or antibiotic-associated colitis</li> </ul>  |
| <b>Side-effects</b>       | No common side-effects   | <ul style="list-style-type: none"> <li>• Abdominal cramps</li> <li>• Dizziness, drowsiness</li> <li>• Skin reactions</li> <li>• Paralytic ileus</li> <li>• Abdominal bloating</li> </ul>   |
| <b>Notes</b>              | <ul style="list-style-type: none"> <li>• Only water should be used for reconstitution. Fruit juices and other sugary or carbonated drinks should not be used.</li> <li>• For children &lt; 1 yr, water should be freshly boiled and cooled, unless bottled water is used.</li> <li>• Discard any unused ORSs within 1 hr or store in a refrigerator for up to 24 hrs.</li> </ul> | <ul style="list-style-type: none"> <li>• Antimotility preparations are <b>not recommended in children &lt; 12 yrs.</b></li> <li>• Loperamide is not licensed for use in chronic diarrhoea in children.</li> <li>• Loperamide acts within 1 hr.</li> </ul>  |

According to the MHRA advice (Medicines and Healthcare products Regulatory Agency, UK - Feb 2009, Oct 2010), non-prescription cough medicines containing Dextromethorphan and Diphenhydramine should not be given to children under 6 yrs and Pholcodine should not be given to children under 18 yrs. Treatment should be restricted to 5 days or less.

|                    | Pholcodine  | Dextromethorphan   | Diphenhydramine   |
|--------------------|---|--|---|
| Class              | Narcotic Antitussive  | Non-Narcotic Antitussive   | Sedating Antihistamine  |
| Dosage regimen     | Consult product literature  |  |   |
| Cautions           | <ul style="list-style-type: none"> <li>•Asthma</li> <li>•Renal impairment</li> <li>•May cause sputum retention (eg. in chest infections)</li> </ul>   | <ul style="list-style-type: none"> <li>•Asthma</li> <li>•Hepatic impairment</li> </ul>   | <ul style="list-style-type: none"> <li>•Epilepsy</li> <li>•Hepatic impairment</li> <li>•Urinary retention</li> <li>•Glaucoma</li> <li>•Pyloro-duodenal obstruction</li> </ul> |
| Contra-indications | <ul style="list-style-type: none"> <li>•Hepatic impairment</li> <li>•Respiratory failure</li> <li>•Hypersensitivity</li> </ul>  | <ul style="list-style-type: none"> <li>•Chronic bronchitis</li> <li>•Respiratory failure</li> <li>•Hypersensitivity</li> </ul> | <ul style="list-style-type: none"> <li>•Hypersensitivity</li> </ul>   |
| Side-effects       | <ul style="list-style-type: none"> <li>•Nausea and vomiting</li> <li>•Constipation</li> <li>•Sputum retention</li> <li>•Dizziness, drowsiness</li> <li>•Respiratory depression in sensitive patients or in large doses</li> </ul> | <ul style="list-style-type: none"> <li>•Nausea and vomiting</li> <li>•Constipation</li> <li>•Drowsiness</li> </ul>             | <ul style="list-style-type: none"> <li>•Drowsiness</li> <li>•Urinary retention</li> <li>•Constipation</li> <li>•Dry mouth</li> <li>•Blurred vision</li> </ul>                 |
| Notes              | <ul style="list-style-type: none"> <li>•Narcotic antitussives are generally <b>not recommended</b> in children</li> </ul>   |  | <ul style="list-style-type: none"> <li>•Drowsiness may affect performance of skilled tasks, eg. cycling</li> </ul>  |

According to the MHRA advice (Medicines and Healthcare products Regulatory Agency, UK - Feb 2009), non-prescription cough medicines containing Carbocisteine and Guaifenesin should not be given to children under 6 yrs. Treatment should be restricted to 5 days or less.

|                    | Carbocisteine  | Guaifenesin  |
|--------------------|--|--|
| Class              | Mucolytic  | Expectorant  |
| Dosage Regimen     | Consult product literature   |  |
| Cautions           | <ul style="list-style-type: none"> <li>History of peptic ulceration</li> </ul>   |  |
| Contra-indications | <ul style="list-style-type: none"> <li>Active peptic ulceration</li> <li>Hypersensitivity</li> </ul>                         | <ul style="list-style-type: none"> <li>Hypersensitivity</li> </ul>   |
| Side-effects       | <ul style="list-style-type: none"> <li>Gastro-intestinal bleeding (<i>rarely</i>)</li> <li>Rashes (<i>rarely</i>)</li> </ul> | <ul style="list-style-type: none"> <li>Dizziness</li> <li>Headache</li> <li>Rash</li> <li>Nausea and vomiting</li> </ul> |
| Notes              | <ul style="list-style-type: none"> <li>Evidence of efficacy is <b>limited</b></li> </ul>                                     | <ul style="list-style-type: none"> <li><b>No evidence</b> of efficacy</li> </ul>   |



## A5

## Anti-pyretics

|                           | Paracetamol  | Ibuprofen   |
|---------------------------|--|---|
| <b>Dosage regimen</b>     | <p><b>&lt; 2 months:</b><br/>Not licensed</p> <p>(2 - 3 months: 60mg for post-immunisation pyrexia)</p> <p><b>3 - 12 months:</b><br/>60-120 mg every 4-6 hrs</p> <p><b>1 - 6 yrs:</b><br/>120-250mg every 4-6 hrs</p> <p><b>6 - 12 yrs:</b><br/>250-500mg every 4-6 hrs</p> <p><b>12 - 18 yrs:</b><br/>500mg every 4-6 hrs</p> <p>(Max. 4 doses in 24 hrs)</p> | <p><b>&lt; 3 months or body weight &lt; 5 kg:</b> Not licensed</p> <p>(2 - 3 months: 50mg for post-immunisation pyrexia)</p> <p><b>3 - 6 months:</b><br/>50 mg 3 times daily</p> <p><b>6 - 12 months:</b><br/>50 mg 3-4 times daily</p> <p><b>1 - 4 yrs:</b><br/>100 mg 3 times daily</p> <p><b>4 - 7 yrs:</b><br/>150 mg 3 times daily</p> <p><b>7 - 10 yrs:</b><br/>200 mg 3 times daily</p> <p><b>10 - 12 yrs:</b><br/>300 mg 3 times daily</p> <p><b>12 - 18 yrs:</b><br/>300-400mg 3-4 times daily</p> |
| <b>Cautions</b>           | <ul style="list-style-type: none"> <li>• Baby born prematurely</li> <li>• Hepatic impairment</li> <li>• Renal impairment</li> </ul>  | <ul style="list-style-type: none"> <li>• Asthma</li> <li>• Hepatic impairment</li> <li>• Renal impairment</li> <li>• Cardiac impairment</li> </ul>  |
| <b>Contra-indications</b> | <ul style="list-style-type: none"> <li>• Hypersensitivity</li> <li>• Taking other products containing paracetamol</li> <li>• Fructose intolerance</li> </ul>   | <ul style="list-style-type: none"> <li>• Hypersensitivity</li> <li>• Gastro-intestinal ulcer or bleeding (active or previous)</li> <li>• Taking other NSAIDs</li> <li>• Fructose intolerance</li> </ul>   |
| <b>Side-effects</b>       | <ul style="list-style-type: none"> <li>• Skin rashes and other allergic reactions</li> <li>• Blood disorders</li> </ul>  | <ul style="list-style-type: none"> <li>• Gastro-intestinal discomfort</li> <li>• Gastro-intestinal bleeding</li> <li>• Worsening of asthma</li> <li>• Fluid retention</li> <li>• Skin rashes</li> </ul>   |

# Body Surface Area Chart

| Body weight (kg) | Surface area (m <sup>2</sup> ) | Body weight (kg) | Surface area (m <sup>2</sup> ) | Body weight (kg) | Surface area (m <sup>2</sup> ) |
|------------------|--------------------------------|------------------|--------------------------------|------------------|--------------------------------|
| 1                | 0.10                           | 15               | 0.65                           | 38               | 1.2                            |
| 1.5              | 0.13                           | 16               | 0.68                           | 39               | 1.3                            |
| 2                | 0.16                           | 17               | 0.71                           | 40               | 1.3                            |
| 2.5              | 0.19                           | 18               | 0.74                           | 41               | 1.3                            |
| 3                | 0.21                           | 19               | 0.77                           | 42               | 1.3                            |
| 3.5              | 0.24                           | 20               | 0.79                           | 43               | 1.3                            |
| 4                | 0.26                           | 21               | 0.82                           | 44               | 1.4                            |
| 4.5              | 0.28                           | 22               | 0.85                           | 45               | 1.4                            |
| 5                | 0.30                           | 23               | 0.87                           | 46               | 1.4                            |
| 5.5              | 0.32                           | 24               | 0.9                            | 47               | 1.4                            |
| 6                | 0.34                           | 25               | 0.92                           | 48               | 1.4                            |
| 6.5              | 0.36                           | 26               | 0.95                           | 49               | 1.5                            |
| 7                | 0.38                           | 27               | 0.97                           | 50               | 1.5                            |
| 7.5              | 0.40                           | 28               | 1.0                            | 51               | 1.5                            |
| 8                | 0.42                           | 29               | 1.0                            | 52               | 1.5                            |
| 8.5              | 0.44                           | 30               | 1.1                            | 53               | 1.5                            |
| 9                | 0.46                           | 31               | 1.1                            | 54               | 1.6                            |
| 9.5              | 0.47                           | 32               | 1.1                            | 55               | 1.6                            |
| 10               | 0.49                           | 33               | 1.1                            | 56               | 1.6                            |
| 11               | 0.53                           | 34               | 1.1                            | 57               | 1.6                            |
| 12               | 0.56                           | 35               | 1.2                            | 58               | 1.6                            |
| 13               | 0.59                           | 36               | 1.2                            | 59               | 1.7                            |
| 14               | 0.62                           | 37               | 1.2                            | 60               | 1.7                            |

**Approximate paediatric dose =  $\frac{\text{Body Surface Area}}{1.73} \times \text{Adult dose}$**

Paediatric Formulary Committee. British National Formulary for children. London: British Medical Association, Royal Pharmaceutical Society of Great Britain and Royal College of Paediatrics and Child Health; 2010.

## Referral Forms

### Referral Form A

Date .....

Dear Dr .....

Name of patient .....

The patient presented with the following symptoms and we thought it was best to refer him/her to you:

.....  
 .....

Sincerely,

.....

Pharmacist

### Referral Form B

Date .....

Dear Dr .....

Name of patient .....

| Date of dispensing | Medication name | Strength, dosage form | Dosage regimen | Duration | Indication |
|--------------------|-----------------|-----------------------|----------------|----------|------------|
|                    |                 |                       |                |          |            |
|                    |                 |                       |                |          |            |
|                    |                 |                       |                |          |            |

The above medication was prescribed for the patient. However, during patient follow-up, it was found that the patient was not responding to therapy as desired, and we thought it was best to refer him/her to you.

If any questions regarding this patient arise, please do not hesitate to call us on:

.....

Sincerely,

.....

Pharmacist

## Patient Medication Record (PMR)

Name of patient: ..... I.D. number: .....

D.O.B.: .....

Name of patient's carer: .....

Current medications:

.....  
 .....

Other medical conditions:

.....  
 .....

Food and drug allergies:

.....  
 .....

| Date | Presenting complaint | Medication name | Strength, Dosage form | Dosage regimen | Duration | Special advice | Follow-up date |
|------|----------------------|-----------------|-----------------------|----------------|----------|----------------|----------------|
|      |                      |                 |                       |                |          |                |                |
|      |                      |                 |                       |                |          |                |                |
|      |                      |                 |                       |                |          |                |                |

Adapted from: National Association of Pharmacy Regulatory Authorities. Pharmacy care plans [homepage on the Internet]. Canada: The Association; [cited 2010 May 13]. Available from: URL: [http://napra.ca/pages/Practice Resources/pharmacy care plans.aspx?id=2165](http://napra.ca/pages/Practice%20Resources/pharmacy%20care%20plans.aspx?id=2165)

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